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EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/938,459

Applicant(s)

NORMAN, CHARLES P.

Examiner

Edith M. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on June 20, 2005. These drawings are not accepted.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "144" has been used to designate both a multiplier and one line and "154" has been used to designate both C/A code and FFT in FIG.1.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: In FIG.2B, signal 113 is shown, not the signal 118 as described in the specification; and in FIG.1 there is no numerical 118 labeled to indicate the signal 118.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Arguments/Remarks

4. Applicant's arguments filed on June 20, 2005, have been fully considered but they are not persuasive.

Argument: The element of the modified/combined apparatus and method of MacDoran does not teach the matching of a comb filter to a received GPS signal to obtain a first output signal comprising filter lines.

Response: As describe in the office action, MacDoran '677 teaches/suggests that the signals received from different satellites are distinguishable from each other by their difference in frequency due to Doppler frequency shift and they could be separated from each other by a comb filter (column 11 lines 15-20 '677) or a band of comb filters shown in Figure 10 of column 77 & 78 (column 50, lines 33-41 '677) coupled to the receiver and generating signal comprising filter lines as shown in Figure 9 of column 75 & 76. At the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the comb filter couple to the 50, 5, 68, 86, & 94 (as the receiver) to receive the GPS signal to the filter 52, 62, 72, 88 & 98 for accurate signal extraction for the purpose of providing accurate, nonambiguous measurement (column 2 lines 35-40 '677) to locate a remote device. Hence the filters such as 62 and 98 output the frequency lines of the comb filter output.

Therefor, the element of the modified/combined apparatus and method of MacDoran '677 in the channel spectral compressor 404 & 405 of Fig.4 ('916) does teach the matching of a comb filter to a received GPS signal to obtain a first output signal comprising filter lines; and the modified/combined apparatus and method of

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MacDoran '677 in the channel spectral compressor 404 & 405 of Fig.4 of MacDoran '916 teach all element or feature recited in the claims.

Argument: This element of the modified/combined apparatus and method does not teach the matching of a comb filter to a received GPS signal to obtain a first output signal comprising filter lines of claim1, wherein the resultant signal 118 is filtered in a 1kHz comb filter 120. As shown in FIG.2D, the frequency spectrum of signal 122 outputted from the comb filter 120 *is a series of signals*, then number is dependent on the number of taps in the comb filter 120.

Response: This element of the modified/combined apparatus and method does teach the matching of a comb filter of Figure 10, column 77 & 78 (column 50, lines 33-41 '677) of MacDoran et al. ('677) to a received GPS signal to obtain a first output signal comprising filter lines, the GPS signal shown in Figure 9 (column 75 & 76 '677), of claim1.

Regarding to as shown in FIG.2D, the frequency spectrum of signals 122 outputted from the comb filter 120 *are a series of GPS data of the GPS signals as described in page 7 lines 1-4 of the specification of the instance application*, and the number is dependent on the number of taps in the comb filter 120 which is not recited in the claim.

Claim Objections

5. Claims 10-11 are objected to because of the following informalities:

Claim 10, line 1: "GPS" should be "GPS signal".

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Claim 11 is dependent on the objected claim 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 7-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim 7 is dependent on the claims 5 and 6, wherein a first GPS signal is received via a antenna, produces a first resultant signal (113 FIG.1) by removing a carrier component of the GPS signal, and the first resultant signal 113 is filtered by a comb filter 120 to produce a second resultant signal 122. However, the claim 7 recites receiving a second GPS signal, mixing the second GPS signal and *the signal 113 generated by the first GPS signal* to produce another 113 signal, and this another 113 signal is filtered to produce the second resultant signal of the first GPS signal, that dose not described in the specification as stated in page 7 lines 1-5 of the specification, wherein *the resultant signal 113* obtained by removing the L1 carrier of the received

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GPS signals, *contains the GPS data* in a spread spectrum format. *Signal 113* is then filtered in a comb filter 120; or the disclosure of the drawings.

Claims 8-11 are dependent on the rejected claim 7.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacDoran et al. (US 5,757,916) in view of MacDoran et al. (US 4,797,677).

To **claim 1**, in Fig.1 (or Fig.2) of '916, MacDoran teaches a host authentication server (element 150) as the GPS receiver to receive a signal sending from the remote client authentication means (element 140) via a communication channel 109, the location signature sensor (LSS element 103) of the remote client authentication means receiving GPS signals from GPS satellites. The LSS element 103 is detailed in Fig.4 (column 3 lines 10-15), wherein the channel spectral compressors (delay and multiply) 404 & 405 (REF: U.S. PATENT 4,797,677 in Fig.4) compressing the C/A and P signals received from the GPS satellites.

Since the MacDoran ('916) suggests the C/A and P channel spectral compressors (delay and multiply) taught in U.S. Patent 4,797,677 by MacDoran ('677), hence at the time of the invention was made, it would have been obvious to one of

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ordinary skill in the art to have the channel spectral compressor (delay and multiply) Fig.3 of '677 implemented in the GPS SENSOR LSS (404 FIG.4 '916) suggested and taught by MacDoma for the purpose of providing an accurate, nonambiguous measurement of pseudo range (column 2 lines 35-40, lines 60-62) to locate a remote device. The

modified/combined apparatus and its method teach In Fig.3 of REF: U.S. PATENT 4,797,677

receiving the GPS signal from the GPS satellite via a wireless link 202/217 (Fig.2).

removing the carrier component (L_1/L_2) of the received GPS signals from antenna 30 by the multipliers 44 and 80,

matching a comb filter (the COMB FILTER taught in column 11 lines 15-20, column 50 lines 33-41 & columns 77-78 Figure 10 '677) with a plurality output signals (frequency lines) coupled to element 62, 72, or 98 to the received GPS signals inputted to the multiplier 58 (column 6 lines 32-40 '677), where the received GPS signals comprises filter lines (the GPS signals shown as filter lines in spectrum, column 75 & 76 Figure 9 '677); and frequency shifting the received GPS signals inputted to the multiplier 58, with the comb filter to produce a compressed signal of the filter lines at the output of element 62.

Wherein the received GPS signals are separated from each other by the COMB FILTER (coupled to the elements 62, or 98 Fig.3 '677 with the COMB FILTER Figure 10 columns 77-78 '677) stated in column 11 lines 15-20 with the bank of comb filters

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coupled to the receiver (the output of multipliers 58 or 94) of Fig.3 ('677) in the channel spectral compressors (404/405 Fig.4 '916) compress the GPS signals.

To **claim 2**, further in Fig. 3 of '677, the modified/combined MacDoran's method teaches frequency shifting the compressed signal at the output of the COMB FILTER inputted to element 62 by the frequency produced by the frequency synthesizer 40 to provide a second compressed GPS signal at the output of 64.

To **claim 3**, in Fig.1 (Fig.2) and Fig.4 of '916, the modified/combined MacDoran teaches sending the signal from the GPS satellites at a remote location to the client authentication means (140/400) via a wireless link (102/401); applying the signal received from the GPS antenna 401 to the comb filter of element 404 (element 62 with the comb filter of Fig.3 '677) inputted to the multiplier 54, then the signal of the comb filter shifts to an expected location in spectrum.

To **claim 4**, in Fig. 3 of '677, the modified/combined MacDoran teaches shifting the output signals at the output of the COMB FILTER coupled to the element 62 (the filter lines) by mixing at least one output of the frequency synthesizer 40 (as a frequency generator) to provide a compressed GPS signal at the output of the multiplier 64.

To **claims 5 & 12**, in Fig.1/Fig.2 of '916, MacDoran teaches a host authentication server (element 150) as the GPS receiver to receive a signal sending from the remote client authentication means (element 140) via a communication channel 109, the location signature sensor (LSS element 103) of the remote client authentication means receiving GPS signals from GPS satellites. The LSS element 103 is detailed in Fig.4 (column 3 lines 10-15), wherein the channel spectral compressors (delay and multiply)

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(element 404 REF: U.S. PATENT 4,797,677 in Fig.4) compressing the C/A and P signals received from the GPS satellites.

Since the MacDoran ('916) suggests the C/A and P channel spectral compressors (delay and multiply) taught in U.S. Patent 4,797,677 by MacDoran ('677), hence at the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the channel spectral compressor (delay and multiply) Fig.3 of '677 implemented in the GPS SENSOR LSS (404 FIG.4 '916) suggested and taught by MacDoran to extract accurate signal for the purpose of providing an accurate, nonambiguous measurement of pseudo range (column 2 lines 35-40, lines 60-62) to locate a remote device.

The modified/combined apparatus with its method teaches In Fig.3 of REF: U.S. PATENT 4,797,677 comprising:

A *receiver* (elements 32, 34, 42,44 & 46 '677) configured to receive the GPS signal from antenna 30;

A multiplier 44 (the *first mixer*) coupled to the receiver to down convert (to *remove* the carrier L_1) the GPS signal (column 6 lines 1-5 '677) and to produce an output signal (the first result signal);

a comb *filter* (columns 77-78 of Figure 10 '677) with a filter 62, separating the Doppler frequency shifted signal (column 11, lines 15-20), coupled to the mixer to generate an output (the second resultant signal) including *a plurality of signals* dispersed over a frequency spectrum (columns 75-77 of Figure 9 '677); and

A multiplier 64 *mixing* two inputs (as the *first frequency shifter*) to shift the frequencies in the output of the COMB FILTER (the *second resultant signal*) producing a signal inputted to the 62 and the frequency synthesizer 40 (as the first frequency shifter) to produce a compressed GPS signal.

To **claims 6, 14, 17, & 18**, the modified/combined apparatus teaches In Fig.3 of REF: U.S. PATENT 4,797,677, further comprising a second frequency shift (the filter 62) to produce a compressed GPS signal.

To **claims 7 & 8**, the modified/combined apparatus teaches In Fig.3 of REF: U.S. PATENT 4,797,677, discloses receiving a second GPS signal at 72 and 74 (delay 489ns), mixing the second GPS signal and the carrier removed GPS signal (the first resultant signal) by the 44 with the signal 1540, which is the same used in the first GPS signal to produce the first resultant, generated by the frequency synthesizer 40; and filtering by the COMB FILTER to produce the second result.

To **claim 9**, in Fig.1/Fig.2, MacDoran ('916) teaches the compressed GPS signal sending to the host authentication server 150 (the base station) via a communications means 109 (the wireless communication link), since the invention of MacDoran ('916) is to identify a remote client's geodetic location that changes constantly (column 1 lines 10-15), hence the communications is via a wireless link.

To **claims 10 & 11**, in FIG.8, MacDoran ('916) teaches the compressed GPS signal including a LSS data containing a name or station ID (signal identifier, column 30, lines 1-5), wherein the station ID is a MIN/ESN of a mobile (column 15, lines 41-47; column 28, lines 8-10).

To **claims 13 & 16**, the modified/combined apparatus teaches In Fig.3 of REF: U.S. PATENT 4,797,677, the multiplier 64 (as the second mixer) comprising two inputs, one is from the output of the filter (the second resultant signal) and one is from the output of the frequency synthesizer 40 (the frequency generator).

To **claim 15**, the modified/combined apparatus teaches In Fig.3 of REF: U.S. PATENT 4,797,677 further comprising:

A multiplier 58 (the third mixer) coupled to the receiver and to the multiplier 44 (the first mixer) configured to produce the output of the multiplier 64 (the second result output).

To **claims 19 & 20**, in Fig.2, MacDoran et al. ('916) discloses a transmitter 210 to transmit the compressed GPS signals and means 203 for identifying the compressed GPS signal to be transmitted.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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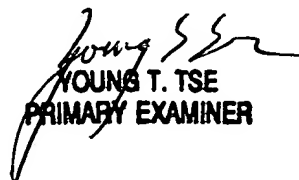
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
September 11, 2005


YOUNG T. TSE
PRIMARY EXAMINER